

Applicants: Frederic Ferrier et al.
Serial No.: 10/552,833
Filed: August 21, 2006
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Amendments to the Claims

This listing of claims will replace all prior versions and listings of claims in the application:

Listing of Claims

1. (Withdrawn-Currently Amended) A process for the manufacture of the ~~Bordeaux~~ hydroxosulfates mixture of claim 27 which comprises reacting an aqueous solution of copper sulphate (CuSO_4) with an aqueous suspension of solid particles of copper oxide or copper hydroxide in a total SO_4/Cu molar ratio ranging from 0.25 to 0.40, the aqueous solution of CuSO_4 having a concentration by weight of copper of between 6% and 10% and the aqueous suspension of solid particles of copper oxide or copper hydroxide having a concentration of copper oxide or copper hydroxide between 15% and 50% by weight wherein the mean diameter of the solid particles of copper oxide or copper hydroxide in the suspension is less than 25 μm , and wherein the reaction is carried out at a controlled temperature between 40° C and 100° C.
2. (Withdrawn) The process according to claim 1, characterized in that the aqueous suspension of solid particles of copper oxide or copper hydroxide additionally contains copper sulphate.
3. (Withdrawn) The process according to claim 1, characterized in that the mean diameter of the solid particles of copper oxide or copper hydroxide in the aqueous suspension is between 0.1 and 10 μm .
4. (Withdrawn) The process according to claim 1, characterized in that a residue from wet sieving with a 25 μm sieve of the solid particles in the aqueous suspension of copper oxide or copper hydroxide relative to a dry extract of the solid particles in the aqueous suspension of copper oxide or copper hydroxide is less than 5% by weight.

5. (Withdrawn) The process according to claim 1, characterized in that the aqueous solution of CuSO₄ has a copper concentration by weight between 6.5% and 8%.
6. (Withdrawn) The process according to claim 1, characterized in that the aqueous suspension of copper oxide or copper hydroxide has a concentration between 20% and 30% by weight.
7. (Withdrawn) The process according to claim 1, characterized in that the copper oxide is copper(II) oxide CuO.
8. (Withdrawn) The process according to claim 1, characterized in that at the end of the reaction, excess copper sulphate is removed by filtration or neutralized with the aid of an organic or inorganic base.
9. (Withdrawn) The process according to claim 8, wherein the organic base is a salt of carboxylic or polycarboxylic acid in which the cation is selected from the group consisting of a sodium ion, a potassium ion, an ammonium ion, and an amine.
10. (Withdrawn) The process of claim 1, wherein the total SO₄/Cu molar ratio ranges from 0.25 to 0.34, wherein the reaction is carried out at an initial temperature less than or equal to 60° C for between one hour and 3 hours, and wherein the reaction is thereafter carried out at a higher temperature for at least one hour.
11. (Withdrawn) The process according to claim 10, characterized in that the initial temperature is between 40° C and 60° C.
12. (Withdrawn) The process according to claim 10, characterized in that the higher temperature is at most equal to 100° C.

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13. (Withdrawn) The process of claim 1, wherein the total SO₄/Cu molar ratio ranges from 0.33 to 0.40, and wherein the reaction medium is kept at an initial temperature of at most equal to 100° C for between 0.5 hour and 3 hours.
14. (Withdrawn) The process according to claim 13, characterized in that the initial temperature is between 70° C and 100° C.
- 15-18. (Cancelled)
19. (Withdrawn-Currently Amended) A method for fungicidal treatment of a crop in need of fungicidal treatment, comprising administering an effective amount of the Bordeaux hydroxosulfates mixture of claim 27 to the crop.
20. (Withdrawn) The process according to claim 1, characterized in that the mean diameter of the solid particles of copper oxide or copper hydroxide in the aqueous suspension is between 0.5 and 5 μ m.
21. (Withdrawn) The process according to claim 1, characterized in that a residue from wet sieving with a 25 μ m sieve of the solid particles in the aqueous suspension of copper oxide or copper hydroxide relative to a dry extract of the solid particles in the aqueous suspension of copper oxide or copper hydroxide is less than 2% by weight.
22. (Withdrawn) The process according to claim 1, characterized in that the aqueous solution of CuSO₄ has a copper concentration by weight between 6.6% and 7.6%.
23. (Withdrawn) The process according to claim 8, characterized in that neutralization of excess copper sulphate is carried out with the aid of an inorganic base selected from the group consisting of sodium hydroxide, potassium hydroxide, lime, aqueous ammonia, sodium carbonate, and potassium carbonate.

24. (Withdrawn) The process according to claim 10, characterized in that the higher temperature is between 65° C and 80° C.
25. (Withdrawn) The process according to claim 13, characterized in that the initial temperature is between 80° C and 90° C.
26. (Cancelled)
27. (Currently Amended) An Bordeaux hydroxosulfates mixture comprising brochantite ($Cu_4(OH)_6SO_4$) or antlerite ($Cu_3(OH)_4SO_4$), or a mixture of both, wherein the total copper content of the hydroxosulfates mixture is between 30% and 45% by weight and the copper content of the hydroxosulfates mixture attributable to brochantite and antlerite is between 30% and 45% by weight.
28. (Currently Amended) A cupric fungicidal composition comprising the Bordeaux hydroxosulfates mixture of claim 27 and a synthetic fungicide, wherein the copper content of the cupric fungicidal composition is between 15% 18% and 40% by weight and is attributable to the mixture of brochantite and antlerite.
29. (Cancelled)
30. (Previously Presented) The cupric fungicidal composition of claim 28, wherein the synthetic fungicide is selected from the group consisting of mancozeb, maneb, zineb, cymoxanil, famoxadone, and benthiavalicarb.
31. (Currently Amended) The Bordeaux hydroxosulfates mixture of claim 27, wherein the Bordeaux hydroxosulfates mixture is in the form of a suspension concentrate, suspo-emulsion, dispersable granule, or wettable powder.

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32. (Currently Amended) The Bordeaux hydroxosulfates mixture of claim 27 further comprising one or more adjuvants selected from the group consisting of dispersing agents, wetting agents, antifoaming agents, colorants, thickeners, pH regulators, and fillers.

33. (New) An hydroxosulfates mixture comprising a mixture of brochantite ($\text{Cu}_4(\text{OH})_6\text{SO}_4$) and antlerite ($\text{Cu}_3(\text{OH})_4\text{SO}_4$), wherein the total copper content of the hydroxosulfates mixture is between 30% and 45% by weight and the copper content of the hydroxosulfates mixture attributable to brochantite and antlerite is between 30% and 45% by weight.